CLAIMS

[1] An anisotropically conductive sheet comprising an insulating sheet body formed of an elastic polymeric substance, in which a plurality of through-holes for forming conductive paths, each extending in a thickness-wise direction of the insulating sheet body, have been formed, and conductive path elements integrally provided in the respective through-holes for forming conductive paths of the insulating sheet body, wherein,

the through-holes for forming conductive paths in the insulating sheet body are formed by using a mask for exposure, in which a plurality of through-holes for beam transmission, the diameter of each of which becomes gradually small from one surface toward the other surface of the mask, have been formed in accordance with a pattern corresponding to a pattern of conductive path elements to be formed, and irradiating the insulating sheet body with a laser beam through the through-holes for beam transmission in the mask for exposure from the other surface side of the mask for exposure.

[2] The anisotropically conductive sheet according to claim 1, wherein the conductive path elements contain conductive particles exhibiting magnetism in a state oriented in a thickness-wise direction thereof.

[3] The anisotropically conductive sheet according to claim 1 or 2, wherein the elastic polymeric substance forming the insulating sheet body is silicone rubber.

[4] The anisotropically conductive sheet according to any one of claims 1 to 3, wherein each of the conductive path elements has a projected part protruding from at least one surface of the insulating sheet body.

[5] The anisotropically conductive sheet according to claim 4, wherein the one surface-side projected part protruding from the one surface of the insulating sheet body has a tapered shape that its diameter becomes gradually small from the proximal end toward the distal end thereof.

[6] A process for producing an anisotropically conductive sheet, comprising:

the first step of providing a mask for exposure, in which a plurality of through-holes for beam transmission, the diameter of each of which becomes gradually small from one surface toward the other surface of the mask, and each of which extends in a thickness-wise direction of the mask, have been formed in accordance with a pattern corresponding to a pattern of conductive path elements to be formed, arranging the mask for exposure on one surface of an insulating sheet base formed of an elastic polymeric

substance in such a manner that the one surface of the mask for exposure comes into contact with the one surface of the insulating sheet base, and irradiating the insulating sheet base with a laser beam through the through-holes for beam transmission in the mask for exposure from the other surface side of the mask for exposure, thereby forming an insulating sheet body in which a plurality of through-holes for forming conductive paths, each extending in a thickness-wise direction of the sheet body, have been formed, and

the second step of charging a conductive path element-forming material with conductive particles dispersed in a polymeric substance-forming material, which will become an elastic polymeric substance by being cured, into each of the through-holes for forming conductive paths in the insulating sheet body, thereby forming conductive path element-forming material layers in the respective through-holes for forming conductive paths in the insulating sheet body, and subjecting the conductive path element-forming material layers to a curing treatment, thereby forming conductive path elements provided integrally with the insulating sheet body.

[7] The process according to claim 6 for producing the anisotropically conductive sheet, wherein particles exhibiting magnetism are used as the

conductive particles in the conductive path element-forming material, and

a magnetic field is applied to the conductive path element-forming material layers formed integrally with the insulating sheet body in a thickness-wise direction thereof, thereby orienting the conductive particles dispersed in each of the conductive path element-forming material layers in the thickness-wise direction of the conductive path element-forming material layer, and the conductive path element-forming material layers are subjected to the curing treatment in this state, thereby forming the conductive path elements.

[8] The process according to claim 7 for producing the anisotropically conductive sheet, wherein a plurality of the through-holes for forming conductive paths are formed at a time by irradiating the insulating sheet base with the laser beam through a plurality of the through-holes for beam transmission in the mask for exposure.

[9] The process according to any one of claims 6 to 8 for producing the anisotropically conductive sheet, wherein the conductive path element-forming material layers are formed by charging the conductive path element-forming material into the through-holes for forming conductive paths in the insulating sheet body and the through-holes for beam transmission in the

mask for exposure in a state that the mask for exposure has remained arranged on the one surface of the insulating sheet body, and the conductive path element-forming material layers are subjected to the curing treatment, thereby forming conductive path elements each having a one surface-side projected part outwardly protruding from the one surface of the insulating sheet body, said projected part having a shape that its diameter becomes gradually small from the proximal end toward the distal end thereof.

[10] A process for producing an anisotropically conductive sheet having an insulating sheet body formed of an elastic polymeric substance, in which a plurality of through-holes for forming conductive paths, each extending in a thickness-wise direction of the insulating sheet body, have been formed, and conductive path elements integrally provided in the respective through-holes for forming conductive paths of the insulating sheet body in a state protruding from at least one surface of the insulating sheet body, the process comprising:

the steps of providing a mask for exposure, in which a plurality of through-holes for beam transmission, the diameter of each of which becomes gradually small from one surface toward the other surface of the mask, and each of which extends in a thickness-wise direction of the mask, have been

formed in accordance with a pattern corresponding to a pattern of conductive path elements to be formed,

preparing a laminate with a resin layer for forming projected parts formed on at least one surface of an insulating sheet base composed of the elastic polymeric substance, arranging the mask for exposure on one surface of the laminate in such a manner that the one surface of the mask for exposure comes into contact with the one surface of the laminate, and irradiating the insulating sheet base with a laser beam through the through-holes for beam transmission in the mask for exposure from the other surface side of the mask for exposure to form a plurality of through-holes for forming conductive paths, each extending in a thickness-wise direction of the insulating sheet base, in the insulating sheet base of the laminate, and at the same time form a plurality of through-holes for forming projected parts, each extending continuously with its corresponding through-hole for forming a conductive path in the thickness-wise direction, in the resin layer for forming projected parts of the laminate, thereby forming a primary composite body with the resin layer for forming projected parts formed on at least one surface of an insulating sheet body,

the steps of charging a conductive path element-forming material with conductive particles dispersed

in a polymeric substance-forming material, which will become an elastic polymeric substance by being cured, into spaces for forming conductive path elements, including internal spaces of the through-holes for forming conductive paths in the insulating sheet body and internal spaces of the through-holes for forming projected parts in the resin layer for forming projected parts, thereby forming conductive path element-forming material layers in the respective spaces for forming conductive paths, and subjecting the conductive path element-forming material layers to a curing treatment to form conductive path elements, thereby forming a secondary composite body with a plurality of the conductive path elements integrally provided in the spaces for forming conductive path elements in the primary composite body, and

the step of dissolving the resin layer for forming projected parts of the secondary composite body to remove it, thereby forming projected parts protruding from at least one surface of the insulating sheet body on the respective conductive path elements.

[11] The process according to claim 10 for producing the anisotropically conductive sheet, wherein silicone rubber is used as the elastic polymeric substance forming the insulating sheet body, and

polyvinyl alcohol is used as a resin layer-forming material forming the resin layer for forming projected parts.

[12] The process according to claim 11 for producing the anisotropically conductive sheet, wherein polyvinyl alcohol having an average polymerization degree of 100 to 5,000 is used.

[13] The process according to any one of claims 10 to 12 for producing the anisotropically conductive sheet, wherein the resin layer for forming projected parts is formed in a thickness of 5 to 100 μm.

[14] The process according to any one of claims 10 to 13 for producing the anisotropically conductive sheet, wherein particles exhibiting magnetism are used as the conductive particles in the conductive path element-forming material,

a magnetic field is applied to the conductive path element-forming material layers formed in the insulating sheet body in a thickness-wise direction thereof, thereby orienting the conductive particles dispersed in each of the conductive path element-forming material layers in the thickness-wise direction of the conductive path element-forming material layer, and the conductive path element-forming material layers are subjected to the curing treatment in this state, thereby forming the conductive path elements.

[15] The process according to any one of claims 10 to 14 for producing the anisotropically conductive sheet, wherein a plurality of the through-holes for forming conductive paths are formed at a time by irradiating the insulating sheet base with the laser beam through a plurality of the through-holes for beam transmission in the mask for exposure.

[16] The process according to any one of claims 10 to 15 for producing the anisotropically conductive sheet, wherein a laminate with a resin layer for forming projected parts formed on the other surface of the insulating sheet base is used to form a primary composite body with the resin layer for forming projected parts formed on the other surface of the insulating sheet body,

the conductive path element-forming material is charged into spaces for forming conductive path elements, including internal spaces of the through-holes for beam transmission in the mask for exposure, internal spaces of the through-holes for forming conductive paths in the insulating sheet body and internal spaces of the through-holes for forming projected parts in the resin layer for forming projected parts, in a state that the mask for exposure has remained arranged on one surface of the insulating sheet body in the primary composite body to form the conductive path element-forming material

layers, the conductive path element-forming material layers are subjected to the curing treatment to form conductive path elements,

the mask for exposure is removed to expose one end portions of the conductive path elements, thereby forming one surface-side projected parts each having a shape that its diameter becomes gradually small from the proximal end toward the distal end thereof, and the resin layer for forming projected parts is dissolved and removed, thereby forming the other surface-side projected parts protruding from the other surface of the insulating sheet body.

[17] The process according to any one of claims 6 to 16 for producing the anisotropically conductive sheet, wherein the laser beam is emitted by means of a carbon dioxide gas laser.

[18] The process according to any one of claims 6 to 17 for producing the anisotropically conductive sheet, wherein a mask having a thickness of 5 to 100 μm is used as the mask for exposure

[19] The process according to any one of claims 6 to 18 for producing the anisotropically conductive sheet, wherein a mask having an opening diameter ratio r2/r1 of an opening diameter r2 in the other surface of the mask to an opening diameter r1 in one surface of the mask of from 0.2 to 0.98 is used as the mask for exposure.

[20] The process according to any one of claims 6 to 19 for producing the anisotropically conductive sheet, wherein a mask composed of a metal is used as the mask for exposure.

[21] An anisotropically conductive connector comprising a frame plate having an opening and the anisotropically conductive sheet according to any one of claims 1 to 5, which is arranged so as to close the opening in the frame plate and supported by an opening edge of the frame plate.

[22] An anisotropically conductive connector suitable for use in conducting electrical inspection of each of a plurality of integrated circuits formed on a wafer in a state of the wafer, which comprises:

a frame plate, in which a plurality of openings have been formed correspondingly to regions, in which electrodes to be inspected in all of the integrated circuits formed on the wafer, which is an object of inspection, have been arranged, and a plurality of anisotropically conductive sheets respectively arranged so as to close the openings in the frame plate and supported by their corresponding opening edges of the frame plate, wherein each of the anisotropically conductive sheets is the anisotropically conductive sheet according to any one of claims 1 to 5.

[23] An anisotropically conductive connector suitable

for use in conducting electrical inspection of each of a plurality of integrated circuits formed on a wafer in a state of the wafer, which comprises:

a frame plate, in which a plurality of openings have been formed correspondingly to regions, in which electrodes to be inspected in a plurality of integrated circuits selected from among the integrated circuits formed on the wafer, which is an object of inspection, have been arranged, and a plurality of anisotropically conductive sheets respectively arranged so as to close the openings in the frame plate and supported by their corresponding opening edges of the frame plate, wherein each of the anisotropically conductive sheets is the anisotropically conductive sheet according to any one of claims 1 to 5.

[24] A process for producing an anisotropically conductive connector, which comprising:

the first step of providing a frame plate, in which an opening has been formed, forming a layer of a polymeric substance-forming material, which will become an elastic polymeric substance by being cured, in the opening of the frame plate and at a peripheral edge portion thereof and subjecting the polymeric substance-forming material layer to a curing treatment, thereby forming a primary composite body with an insulating sheet base composed of the elastic

polymeric substance and formed so as to close the opening in the frame plate supported by an opening edge of the frame plate,

the second step of irradiating the insulating sheet base with a laser beam through a plurality of through-holes for beam transmission in a mask for exposure, in which the through-holes for beam transmission, the diameter of each of which becomes gradually small from one surface toward the other surface of the mask, and each of which extends in a thickness-wise direction of the mask, have been formed in accordance with a pattern corresponding to a pattern of conductive path elements to be formed, from the side of the other surface of the mask for exposure, thereby forming a secondary composite body with an insulating sheet body, in which a plurality of through-holes for forming conductive paths, each extending in a thickness-wise direction of the sheet body, have been formed, and which has been formed so as to close the opening in the frame plate, supported by the opening edge of the frame plate, and

the third step of charging a conductive path element-forming material with conductive particles dispersed in a polymeric substance-forming material, which will become an elastic polymeric substance by being cured, into each of the through-holes for forming conductive paths in the secondary composite

body, thereby forming conductive path element-forming material layers, and subjecting the conductive path element-forming material layers to a curing treatment, thereby forming an anisotropically conductive sheet with conductive path elements integrally provided in the through-holes for forming conductive path elements of the insulating sheet body.

[25] A process for producing an anisotropically conductive connector, which comprises:

the first step of providing a frame plate, in which a plurality of openings each extending in a thickness-wise direction of the frame plate have been formed correspondingly to regions, in which electrodes to be inspected in all of integrated circuits formed on a wafer, which is an object of inspection, have been arranged, or regions, in which electrodes to be inspected in a plurality of integrated circuits selected from among the integrated circuits formed on the wafer have been arranged,

forming a layer of a polymeric substance-forming material, which will become an elastic polymeric substance by being cured, in each of the openings of the frame plate and at a peripheral edge portion thereof and subjecting the polymeric substance-forming material layer to a curing treatment, thereby forming a primary composite body with a plurality of

insulating sheet bases each composed of the elastic polymeric substance and formed so as to close the openings in the frame plate supported by their corresponding opening edges of the frame plate,

the second step of irradiating the insulating sheet bases with a laser beam through a plurality of through-holes for beam transmission in a mask for exposure, in which the through-holes for beam transmission, the diameter of each of which becomes gradually small from one surface toward the other surface of the mask, and each of which extends in a thickness-wise direction of the mask, have been formed in accordance with a pattern corresponding to a pattern of conductive path elements to be formed, from the side of the other surface of the mask for exposure, thereby forming a secondary composite body with a plurality of insulating sheet bodies, in which a plurality of through-holes for forming conductive paths, each extending in a thickness-wise direction of each of the sheet bodies, have been formed, supported by their corresponding opening edges of the frame plate, and

the third step of charging a conductive path element-forming material with conductive particles dispersed in a polymeric substance-forming material, which will become an elastic polymeric substance by being cured, into each of the through-holes for

forming conductive paths in the secondary composite body, thereby forming conductive path element-forming material layers, and subjecting the conductive path element-forming material layers to a curing treatment, thereby forming anisotropically conductive sheets with conductive path elements integrally provided in the through-holes for forming conductive path elements of each of the insulating sheet bodies.

[26] The process according to claim 24 or 25 for producing the anisotropically conductive connector, wherein particles exhibiting magnetism are used as the conductive particles in the conductive path element-forming material, and

a magnetic field is applied to the conductive path element-forming material layers formed in the insulating sheet body in a thickness-wise direction thereof, thereby orienting the conductive particles dispersed in each of the conductive path element-forming material layers in the thickness-wise direction of the conductive path element-forming material layer, and the conductive path element-forming material layers are subjected to the curing treatment in this state, thereby forming the anisotropically conductive sheet with the conductive path elements integrally provided in the through-holes for forming conductive path elements of the insulating sheet body.

[27] The process according to any one of claims 24 to 26 for producing the anisotropically conductive connector, wherein the polymeric substance-forming material is applied on to one surface of a flat plate-like supporting plate, the frame plate is arranged in such a manner that the other surface of the frame plate is separated from and opposed to the one surface of the supporting plate, the mask for exposure is arranged in such a manner that one surface of the mask is separated from and opposed to one surface of the frame plate, these are superimposed on one another to pressurize them, thereby forming polymeric substance-forming material layers of the intended form in forming spaces including internal spaces of the openings of the frame plate, spaces between the frame plate and the mask for exposure and internal spaces of the through-holes for beam transmission in the mask for exposure, and the polymeric substance-forming material layers are subjected to the curing treatment, thereby forming a primary composite body, in which a plurality of insulating sheet bases each having projected part-forming portions are arranged so as to close the openings in the frame plate, and peripheral edge portions of the insulating sheet bases are supported by their corresponding opening edges of the frame plate,

the insulating sheet bases are irradiated with the laser beam through the through-holes for beam transmission in the mask for exposure from the other surface side of the mask for exposure, thereby forming a secondary composite body with a plurality of insulating sheet bodies, in which through-holes for forming conductive paths, each extending in a thickness-wise direction of the sheet body, have been formed in the projected part-forming portions, supported by their corresponding opening edges of the frame plate, and

the conductive path element-forming material with the conductive particles dispersed in the polymeric substance-forming material, which will become the elastic polymeric substance by being cured, is charged into the through-holes for forming conductive paths of the respective projected part-forming portions in the secondary composite body, thereby forming conductive path element-forming material layers, and the conductive path element-forming material layers are subjected to the curing treatment, thereby forming anisotropically conductive sheets with conductive path elements each having a one surface-side projected part protruding from the one surface of the insulating sheet body integrally provided in the through-holes for forming conductive path elements in each of the insulating sheet bodies.

[28] A process for producing an anisotropically conductive connector equipped with a frame plate having an opening and an anisotropically conductive sheet arranged so as to close the opening in the frame plate and supported by an opening edge of the frame plate, in the anisotropically conductive sheet of which a plurality of conductive path elements each extending in a thickness-wise direction of the sheet are formed in a state protruding from at least one surface of an insulating sheet base composed of an elastic polymeric substance, the process comprising:

the steps of providing the frame plate, in which the opening has been formed, forming a layer of a polymeric substance-forming material, which will become the elastic polymeric substance by being cured, in the opening of the frame plate and at an opening edge portion thereof, and subjecting the polymeric substance-forming material layer to a curing treatment, thereby forming an insulating sheet base composed of the elastic polymeric substance in the opening of the frame plate and at the opening edge portion thereof to prepare a laminate with a resin layer for forming projected parts formed on at least one surface of the insulating sheet base,

the steps of arranging a mask for exposure, in which a plurality of through-holes for beam transmission, the diameter of each of which becomes

gradually small from one surface toward the other surface of the mask, have been formed in accordance with a pattern corresponding to a pattern of conductive path elements to be formed, on one surface of the laminate in such a manner that the one surface of the mask for exposure comes into contact with the one surface of the laminate, and irradiating the insulating sheet base with a laser beam through the through-holes for beam transmission in the mask for exposure from the other surface side of the mask for exposure to form a plurality of through-holes for forming conductive paths, each extending in a thickness-wise direction of the insulating sheet base, in the insulating sheet base of the laminate, and at the same time form a plurality of through-holes for forming projected parts, each extending continuously with its corresponding through-hole for forming a conductive path in the thickness-wise direction, in the resin layer for forming projected parts of the laminate, thereby forming a primary composite body with the resin layer for forming projected parts formed on at least one surface of an insulating sheet body provided in the opening of the frame plate and at the opening edge portion thereof,

the steps of charging a conductive path element-forming material with conductive particles dispersed in a polymeric substance-forming material, which will

become an elastic polymeric substance by being cured, into spaces for forming conductive path elements, including internal spaces of the through-holes for forming conductive paths in the insulating sheet body and internal spaces of the through-holes for forming projected parts in the resin layer for forming projected parts, thereby forming conductive path element-forming material layers in the respective spaces for forming conductive paths, and subjecting the conductive path element-forming material layers to a curing treatment to form conductive path elements, thereby forming a secondary composite body with a plurality of the conductive path elements integrally provided in the spaces for forming conductive path elements in the primary composite body, and

the step of dissolving the resin layer for forming projected parts of the secondary composite body to remove it, thereby forming projected parts protruding from at least one surface of the insulating sheet body on the respective conductive path elements.

[29] A process for producing an anisotropically conductive connector, which comprises:

the steps of providing a frame plate, in which a plurality of openings each extending in a thickness-wise direction of the frame plate have been formed

correspondingly to regions, in which electrodes to be inspected in all of integrated circuits formed on a wafer, which is an object of inspection, have been arranged, or regions, in which electrodes to be inspected in a plurality of integrated circuits selected from among the integrated circuits formed on the wafer have been arranged,

forming a layer of a polymeric substance-forming material, which will become an elastic polymeric substance by being cured, in each of the openings of the frame plate and at an opening edge portion thereof and subjecting the polymeric substance-forming material layer to a curing treatment, thereby preparing a laminate, in which insulating sheet bases composed of the elastic polymeric substance and formed so as to close the respective openings in the frame plate are supported by their corresponding opening edges of the frame plate, and a resin layer for forming projected parts is formed on at least one surface of the insulating sheet base,

the steps of arranging a mask for exposure, in which a plurality of through-holes for beam transmission, the diameter of each of which becomes gradually small from one surface toward the other surface of the mask, and each of which extends in a thickness-wise direction of the mask, have been formed in accordance with a pattern corresponding to

a pattern of conductive path elements to be formed, on one surface of the laminate in such a manner that the one surface of the mask for exposure comes into contact with the one surface of the laminate, and irradiating the insulating sheet bases with a laser beam through the through-holes for beam transmission in the mask for exposure from the other surface side of the mask for exposure to form a plurality of through-holes for forming conductive paths, each extending in a thickness-wise direction of the insulating sheet base, in the insulating sheet bases of the laminate, and at the same time form a plurality of through-holes for forming projected parts, each extending continuously with its corresponding through-hole for forming a conductive path in the thickness-wise direction, in the resin layer for forming projected parts of the laminate, thereby forming a primary composite body with the resin layer for forming projected parts formed on at least one surface of each of insulating sheet bodies provided in the opening of the frame plate and at the opening edge portion thereof,

the steps of charging a conductive path element-forming material with conductive particles dispersed in a polymeric substance-forming material, which will become an elastic polymeric substance by being cured, into spaces for forming conductive path elements,

including internal spaces of the through-holes for forming conductive paths in the insulating sheet bodies and internal spaces of the through-holes for forming projected parts in the resin layer for forming projected parts, thereby forming conductive path element-forming material layers in the respective spaces for forming conductive paths, and subjecting the conductive path element-forming material layers to a curing treatment to form conductive path elements, thereby forming a secondary composite body with a plurality of the conductive path elements integrally provided in the spaces for forming conductive path elements in the primary composite body, and

the step of dissolving the resin layer for forming projected parts of the secondary composite body to remove it, thereby forming projected parts protruding from at least one surface of each of the insulating sheet bodies on the respective conductive path elements.

[30] The process according to claim 28 or 29 for producing the anisotropically conductive connector, wherein silicone rubber is used as the elastic polymeric substance forming the insulating sheet body, and polyvinyl alcohol is used as a resin layer-forming material forming the resin layer for forming projected parts.

[31] The process according to claim 30 for producing the anisotropically conductive connector, wherein polyvinyl alcohol having an average polymerization degree of 100 to 5,000 is used.

[32] The process according to any one of claims 28 to 31 for producing the anisotropically conductive connector, wherein the resin layer for forming projected parts is formed in a thickness of 5 to 100 μm.

[33] The process according to any one of claims 28 to 32 for producing the anisotropically conductive connector, wherein particles exhibiting magnetism are used as the conductive particles in the conductive path element-forming material,

a magnetic field is applied to the conductive path element-forming material layers formed in the insulating sheet body in a thickness-wise direction thereof, thereby orienting the conductive particles dispersed in each of the conductive path element-forming material layers in the thickness-wise direction of the conductive path element-forming material layer, and the conductive path element-forming material layers are subjected to the curing treatment in this state, thereby forming the conductive path elements integrally provided in the through-holes for forming conductive path elements of the insulating sheet body.

[34] The process according to any one of claims 28 to 33 for producing the anisotropically conductive connector, wherein a laminate material is prepared by forming a resin layer for forming projected parts on one surface of a flat plate-like supporting plate, the polymeric substance-forming material is applied on to either or both of one surface of the laminate material and one surface of the mask for exposure to form a polymeric substance-forming material layer, the frame plate is arranged in such a manner that the other surface of the frame plate is separated from and opposed to the one surface of the laminate material, the mask for exposure is arranged in such a manner that the one surface of the mask is separated from and opposed to one surface of the frame plate, these are superimposed on one another to pressurize them, thereby forming polymeric substance-forming material layers of the intended form in forming spaces including internal spaces of the openings of the frame plate, spaces between the frame plate and the mask for exposure and internal spaces of the through-holes for beam transmission in the mask for exposure, and the polymeric substance-forming material layers are subjected to the curing treatment, thereby forming insulating sheet bases,

the insulating sheet bases are irradiated with the laser beam through the through-holes for beam

transmission in the mask for exposure from the other surface side of the mask for exposure to form a plurality of through-holes for forming conductive paths, each extending in the thickness-wise direction, in each of the insulating sheet bases, and at the same time form a plurality of through-holes for forming projected parts, each extending continuously with its corresponding through-hole for forming a conductive path in the thickness-wise direction, in each of the resin layers for forming projected parts, thereby forming a primary composite body with the resin layer for forming projected parts provided on the other surface of an insulating sheet body provided in each of the openings in the frame plate and at an opening edge portion thereof,

the conductive path element-forming material is charged into spaces for forming conductive path elements, including internal spaces of the through-holes for forming conductive paths in the insulating sheet bodies and internal spaces of the through-holes for forming projected parts in the resin layers for forming projected parts, thereby forming conductive path element-forming material layers, and the conductive path element-forming material layers are subjected to the curing treatment to form conductive path elements, and

the mask for exposure is removed to expose one

end portions of the conductive path elements, thereby forming one surface-side projected parts each having a shape that its diameter becomes gradually small from the proximal end toward the distal end thereof, and the resin layers for forming projected parts are dissolved and removed, thereby forming the other surface-side projected parts protruding from the other surface of each of the insulating sheet bodies.

[35] The process according to claim 27 or 34 for producing the anisotropically conductive connector, wherein one composed of the same material as used in the frame plate is use as the supporting plate.

[36] The process according to any one of claims 24 to 35 for producing the anisotropically conductive connector, wherein the laser beam is emitted by means of a carbon dioxide gas laser.

[37] The process according to any one of claims 24 to 36 for producing the anisotropically conductive connector, wherein a mask having a thickness of 5 to 100 μm is used as the mask for exposure

[38] The process according to any one of claims 24 to 37 for producing the anisotropically conductive connector, wherein a mask having an opening diameter ratio r2/r1 of an opening diameter r2 in the other surface of the mask to an opening diameter r1 in one surface of the mask of from 0.2 to 0.98 is used as the mask for exposure.

[39] The process according to any one of claims 24 to 38 for producing the anisotropically conductive connector, wherein a mask composed of a metal is used as the mask for exposure.

[40] A probe for circuit inspection, which comprises a circuit board for inspection, on the surface of which inspection electrodes have been formed in accordance with a pattern corresponding to a pattern of electrodes to be inspected of a circuit device, which is an object of inspection, and the anisotropically conductive sheet according to any one of claims 1 to 5 or the anisotropically conductive connector according to claim 21, which is arranged on the surface of the circuit board for inspection.

[41] A probe for circuit inspection that is suitable for use in conducting electrical inspection of each of a plurality of integrated circuits formed on a wafer in a state of the wafer, which comprises:

a circuit board for inspection, on the surface of which inspection electrodes have been formed in accordance with a pattern corresponding to a pattern of electrodes to be inspected in all of the integrated circuits formed on the wafer, which is an object of inspection, and the anisotropically conductive connector according to claim 22, which is arranged on the surface of the circuit board for inspection.

[42] A probe for circuit inspection that is suitable for use in conducting electrical inspection of each of a plurality of integrated circuits formed on a wafer in a state of the wafer, which comprises:

a circuit board for inspection, on the surface of which inspection electrodes have been formed in accordance with a pattern corresponding to a pattern of electrodes to be inspected in a plurality of integrated circuits selected from among the integrated circuits formed on the wafer, which is an object of inspection, and the anisotropically conductive connector according to claim 23, which is arranged on the surface of the circuit board for inspection.

[43] The probes for circuit inspection according to claim 41 or 42, wherein a sheet-like connector composed of an insulating sheet and a plurality of electrode structures each extending through in a thickness-wise direction of the insulating sheet and arranged in accordance with a pattern corresponding to the pattern of the inspection electrodes in the circuit board for inspection is arranged on the anisotropically conductive connector.

[44] An electrical inspection apparatus for circuit devices, comprising the probe for circuit inspection according to any one of claims 40 to 43.